The Effect of Problem-based Learning on Learning Levels of Postgraduate Students During Medical Microbiology Training in Tehran University of Medical Sciences

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Background & Objectives: The goal of medical education, is training empowers individuals in addition to pure information, with the reasoning, creativity, critical and reflective thinking, and applying clinical skills and actively engage in learning. In this study, the efficiency of problem-based learning and its impact on the educational achievement of postgraduate students of medical microbiology and dental residencies have been studied.

Methods: This quasi-experimental study compares students learning before and after problem-based learning manner. All subjects of medical microbiology were taught in problem-based manner for 12 Ph.D postgraduate students of medical bacteriology, 15 MSc postgraduate medical microbiology and 23 dental residencies from Tehran University of Medical Sciences (TUMS), in the academic year 2007-12. Students were evaluated through a pre-test at the beginning of the semester and a post-test which was held at immediately after the teaching and the end of the semester. Data was analyzed by SPSS software using independent T-test and paired T-test.

Results: In the field of mental ability and skills to understand and use, post-test scores were higher than the pre-test scores significantly (P=0.02). But post-test, immediately after the end of each lesson topic were no significant differences (P=0.6). In the levels of analysis, synthesis and evaluation, post-test scores the end of the semester were higher than the pre-test at the beginning of the semester(P=0.02). There was no significant difference in the mean of correct answers to post-test questions in the cognitive level of knowledge and the pre-test scores (P=0.06). The satisfaction of teaching students to practice problem- based learning was a statistically significant (P<0.0001). Participation and interest was significantly effective, in both areas of study in the problem-based learning (P<0.0001).

Conclusion: Problem-based learning Improve mental abilities, skills and lasting learning. In the problem -based learning methods, students are directed more toward thinking. Moreover, this methods creates a sense of participation and the motivation for further study.Students are encouraged to reflect more, and avoid memorizing the material in PBL methods. Moreover, this methods motivates students to study more by encouraging them into more group interaction.

Keywords: Problem Based Learning; Microbiology; Medical Education